Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of modifying expression of cell cycle or cell signaling proteins comprising:

modifying the nuclear or cellular concentration of biliverdin reductase, or fragments or variants thereof, in a cell, whereby a change in the nuclear or cellular concentration of biliverdin reductase, or fragments or variants thereof, modifies the transcription or expression of cell cycle or cell signaling proteins.

2. (Original) The method according to claim 1 wherein said modifying comprises:

transforming the cell with a DNA construct which expresses antisense biliverdin reductase RNA or siRNA in the cell, said transforming decreasing the nuclear or cellular concentration of biliverdin reductase.

3. (Original) The method according to claim 1 wherein said modifying comprises:

transforming the cell with a DNA construct which expresses biliverdin reductase or fragments or variants thereof in the cell, said transforming increasing the nuclear or cellular concentration of biliverdin reductase or fragments or variants thereof.

4. (Original) The method according to claim 1 wherein said modifying comprises:

introducing biliverdin reductase or fragments or variants thereof into the cell.

5. (Original) The method according to claim 4 wherein said introducing comprises:

contacting the cell with a delivery vehicle comprising biliverdin reductase or fragments or variants thereof under conditions effective to induce cellular uptake of at least the biliverdin reductase or fragments or variants thereof.

6. (Original) The method according to claim 5 wherein the delivery vehicle is a liposome comprising biliverdin reductase or fragments or variants thereof.

7. (Original) The method according to claim 5 wherein the delivery vehicle is a fusion protein comprising biliverdin reductase or fragments or variants thereof.

8. (Original) The method according to claim 1 wherein the cell is *ex vivo*.

9. (Original) The method according to claim 1 wherein the cell is *in vivo*.

10. (Currently Amended) The method according to claim 1 wherein the cell signal protein is selected from the group consisting of PKC, creb-2, bax, bfl-1, IAP-1, IAP-2, p16Ink4, beta-casein, p450XIX, GADD45, HIP, p27Kip1, p15Ink2b, p18 (cdk4 inhibitor), CDX1, FASN, Stra6.

11. (Original) The method according to claim 1 wherein the cell cycling protein is selected from the group consisting of cyclins A, E1 and E2, CDK15a, CDC7, cdk1, cdk2, cdk8, Cks2, Cks1p9, Cul1, Cul2, Cul3, E2F-3, MAD2L1, MCM6, Rbx1, RAD50, cdk4, CDK10, and RPL13A.

12. (Original) A method of treating a condition associated with an expression levels of a cell cycle or a cell signaling protein, said method comprising:

performing the method according to claim 1 in a cell, thereby altering the expression of a cell cycle or cell signaling protein to treat a condition associated therewith.

13. (Original) The method according to claim 12 wherein said performing achieves a reduction in cellular or nuclear concentration of biliverdin reductase.

14. (Original) The method according to claim 12 wherein said performing achieves an increase in cellular or nuclear concentration of biliverdin reductase.

15. (Original) The method according to claim 12 wherein the condition is associated with a cell signaling protein.

16. (Currently Amended) The method according to claim 15 wherein the cell signaling protein is selected from the group of PKC, creb-2, bax, bfl-1, IAP-1, IAP-2, p16Ink4, beta-casein, p450XIX, GADD45, HIP, p27Kip1, p15Ink2b, p18 (cdk4 inhibitor), CDX1, FASN, Stra6.

17. (Original) The method according to claim 15 wherein the cell signaling protein is creb-2.

18. (Original) The method according to claim 17 wherein the creb-2 associated condition is selected from the group of stress-related cell growth and/or cell proliferation and NF-Kβ mediated vascular inflammation or atherogenesis.

19. (Original) The method according to claim 1 wherein the condition is associated with a cell cycling protein.

20. (Original) The method according to claim 19 wherein the cell cycling protein is selected from the group consisting of cyclins A, E1 and E2, CDK15a, CDC7, cdk1, cdk2, cdk8, Cks2, Cks1p9, Cul1, Cul2, Cul3, E2F-3, MAD2L1, MCM6, Rbx1, RAD50, cdk4, CDK10, and RPL13A.

21. (Original) A DNA molecule encoding an siRNA that inhibits biliverdin reductase.

22. (Original) The DNA molecule according to claim 21 comprising the nucleotide sequence of nt 8-58 from SEQ ID NO: 17.

23. (Original) An expression vector comprising the DNA molecule according to claim 21.

24. (Original) A host cell comprising the DNA molecule according to claim 21.

25. (Original) The host cell according to claim 24 wherein the host cell is *ex vivo*.

26. (Original) The host cell according to claim 24 wherein the host cell is *in vivo*.

27. (Original) A siRNA molecule encoded by the DNA molecule according to claim 21, wherein the siRNA molecule comprises less than about 30 nucleotides and inhibits biliverdin reductase expression.

28. (Original) The siRNA molecule according to claim 27 wherein the RNA nucleotide sequence comprises SEQ ID NO: 8.

29. (Original) The siRNA molecule according to claim 27 wherein the siRNA molecule is in the form of an RNA duplex.